

# Rochester DX Association



## Field Day Wrap-up



Hey Doug, A bear has been sighted next to your QTH. You may want to revisit your FD plans.

- Jack WA2CHV

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### UPCOMING MEETINGS

**September 15** – Show Us Your Shack (<https://us02web.zoom.us/j/85359728812>)

**October 20** – DX Engineering Related Offerings <https://us02web.zoom.us/j/82784843990>

***RDXA Meetings will be virtual until further notice. We will be presenting all future meetings on the Zoom collaboration platform. Meetings begin at 7:30PM EST.***

## President's Letter

How's DX?

I hope your summer has been a good one, can't really complain about the WX – granted, a bit of humidity here and there but overall, many sunny days. Hopefully, you've had time to work on outdoor antenna projects as the "fall" DX contests are fast approaching.

I've been busy with several longstanding projects at W2CCC – a "shack" redesign is explained elsewhere in this bulletin.

Not living there is obviously a disadvantage, can't just come home from work and continue a project you may have started a few days ago. With other pressing chores, radio takes a back seat often.

Great example, a few days after I wrote the W2CCC article, went up north to cut the lawn, steam carpets and buff the floors.

Arriving about 10pm Friday nite, I go into the shack to turn on a few rigs. I generally "listen" to MSK144 on 6m and FT8 on 160m overnite. Looking at what has been heard, I can see how propagation (on 160m) or scatter on 6m will be. With zero noise, it's very interesting what I see in the mornings.

Well, walked into the shack and there were "thousands" of dead bees all over the floor. Windows sills had quite a few but thankfully the radios, bed, chairs and other surfaces were generally clean.

Looking further I see a "live" cluster on one of the windows and another much larger one in the corner of another.

So how to clean up this mess (and what happened)?

I got out a portable vacuum cleaner and got all the dead bees cleaned up, they were everywhere, under furniture, behind things, on the curtains. Any that were "live" were very docile, not flying or moving much. I dumped those outside.

So, that being done, now the "live" clusters. I once again vacuumed them both, hundreds of bees... I taped the end of the hose off and took the vacuum outside for the nite. Next morning I opened the vacuum cleaner to a swam of pretty angry bees, flew right out (and probably back to the nest that the entered the house through).

We did notice a small gap between one of our windows and the nest outside that a few entered the house thru, some spray foam stopped that and the rest of the weekend, we saw no more in the house.

Not being a bee keeper, my theory is or some reason the group in the house got separated from the queen, not able to return to the nest they died. There is no hive in the house so they must have entered thru the gap in the window. This all happened in a 5 day spread as we were there a week before. Never a dull movement when you go up there.

We've had birds break thru 2 pane glass and fly around the house (and crap everywhere), animals try to dig holes in the side of the house to burrow for the winter. 4 major microbursts which has taken down several large trees, a direct lightning strike that fried much of the electrics in the house, bats, chipmunks, mice... that's the short list.

But.... What a great place to operate from!!!

Moving on to RDXA business, please see the calendar elsewhere in this issue. The board has met and is beginning to plan our meeting presentations and other yearly events.

We've been advised by our County liaison, N2PU (Lloyd) that the EOC will be unavailable until at least 2021 so we'll continue to hold "Zoom" meetings until then.

Our September program will be "Show us your Shack" and can be with slides or a "live" view during the "Zoom" meeting!! Just sign in on your phone and take us for a tour!!

We'll have signup information that will be sent to all, let us know your preferred presentation method. I think it will be fun.

The postponed awards banquet (which is being planed by the RVHFG this year) is being discussed and may be held in October. A location has been contacted and a date is what is left to be determined. More on that as it becomes available.

In October, the "Zoom" meeting will be a presentation by DX Engineering's Tim Duffy, K3LR on new offerings by them. Glad we were able to get on their calendar, this will be and exciting presentation for sure.

The November program is being planned and we hope to hold the Holiday Dinner in December. With things settling down and that particular event several months off, we're pretty confident we'll be able to hold it. With the closure of several of our prior locations, a new establishment will have to be chosen.

I see in the RARA Rag that there have been dates set for the RMSC event in December. They are weekdays and I have yet to be contacted by the organizer but have placed it on our calendar though.

The "contest" season is coming up quickly, remember to list Rochester (NY) DX Assn as your club and submit your score to the grid at RDXA.com.

Looking forward to a great year, albeit a "virtual" one in many aspects.

Thanks to the board for it's continued support (and wealth of ideas) and the entire membership for it's continued enthusiasm.

Best DX es 73,

Chris K2CS

President, Rochester DX Association

## 2020 RDXA FD Results Summary

Vic Gauvin K1PY

It's now post-Field Day 2020, and what turned out to be a once-in-a-lifetime FD. If you ever wanted a change of pace from our "regular" FD, then you got it!

The surprising thing is that the League customized the otherwise sacrosanct rules to allow for some major (one-time) changes to deal with the Covid-19 pandemic safety rules:

- Home stations running commercial power, Class D, could work other Class D stations for contact points – this had not ever been allowed
- With a large number of clubs prioritizing health safety and foregoing an actual group "field" activity (Class A), the League allowed club members to work from their personal home stations, but still participate as a club group. They did this by
  - letting members claim their club even while operating from their personal station
  - listing the club name in their entry in the QST FD results
  - aggregating all club scores into a single overall club entry in the results
- Furthermore, these entrants could submit their entry towards the club aggregate score *no matter where they were located*. We had Paul K2DB (in NFL), Don K2DV (in WCF), and Ken N8KH (in SFL) take advantage of this. (I'm noticing a trend here....)

Again, quite surprising, not expected, and very welcome.

So, with all these changes, what did RDXA members end up doing? Here's a summary.

Twenty-two members sent in scores to the ARRL. They ran a combination of classes:

- Home, commercial mains power (11)
  - 1D – one station (9 – see table below)
  - 2D – two stations (1, W2CCC)
  - 3D – three stations (1, K2TER) (note that this was single-op!)
- 1E -- Home, emergency power (4 – see table)
- 1B -- Home-based "remote field" (back yard) 1 station operation (6 – see table)
- 2A – Home-based "remote field" (back yard) 2 station operation (1, N2DD)

Low power (100W) was the predominant transmit power (16), but 6 chose to fight it out using 5 Watts of QRP power. (Odd way to phrase this, but "more power to them!")

Modes were varied, as expected

- PH only (5) – K2DH, K2DV, KA2CGB, N2DD, W2BSN
- CW only (5) – AC2RL, K2DB, K2OS, K2RNY, N4KHF
- DIG only (2) – K2MTH, K2TER
- PH & CW (5) – KV2X, N2BEG, N8KH, W2LB, WA2CHV
- PH & DIG (2) – K2SI, KB2E
- CW & DIG (2) – AI2N, NN2L
- PH & CW & DIG (1) – W2CCC

All together, they accumulated over 5,000 QSOs (5080) spread over the following modes:

- Phone – **764**
- CW – **3110**
- Digital – **1206**

This provided a fair amount of contact points (contacts x mode (PH x1, CW & Dig x2)) along with the power multiplier (LP=2x, QRP= 5x) totaling **26,430!**

Added to the preceding were **bonus points**. Many were available just like for a regular FD, but few took advantage of most of them. Total bonus points were **2600**.

- Everyone got **50** points by sending their entry to the League using the online Webform (works quite nicely as well)
- Several (9) got **100** points by running emergency power, primarily a generator (either as a class B or E station)
- A few went the extra mile
  - Dan N2DD, 2A LP -- **350** pts
    - 200 for 2 rigs on emergency power
    - 100 for Alternate (solar) power
    - 50 for Web entry submission
  - Ken N8KH, 1D LP – **450** pts
    - 100 for Media Publicity
    - 100 for Message to SM
    - 100 for 10 Formal Messages
    - 100 for copying W1AW FD message
    - 50 for Web entry submission

This gave us an **overall total of 29,030 points!**

Here's a tabulation by callsign for those stations for which I could obtain data.

CALL	CL	PWR	TOT Qs	PH (Q-pts=x1)		CW (Q-pts=x2)		DIG (Q-pts=x2)		Q-pts x Pwr mult	TOT Q-pts	BONUS Pts	TOT PTS
				Qs	Q-Pts	Qs	Q-Pts	Qs	Q-Pts				
AC2RL	1B	QRP	61			61	122			5	610	50	660
AI2N	1D	LP	600			403	806	197	394	2	2400	50	2450
K2DB	1B	QRP	232			232	464			5	2320	150	2470
K2DH	1D	LP	319	319	319					2	638	50	688
K2DV	1D	LP	85	85	85					2	170	50	220
K2MTH	1D	LP	72					72	144	2	288	50	338
K2OS	1E	QRP	242			242	484			5	2420	150	2570
K2RNY	1B	QRP	24			24	48			5	240	50	290
K2SI	1D	LP	12	7	7			5	10	2	34	50	84
K2TER	3D	LP	650					650	1300	2	2600	50	2650
KA2CGB	1D	LP	115	115	115					2	230	50	280
KB2E	1D	LP	240	5	5			235	470	2	950	50	1000
KV2X	1B	LP	444	2	2	442	884			2	1772	150	1922
N2BEG	1B	LP	304	63	63	241	482			2	1090	150	1240
N2DD	2A	LP	73	73	73					2	146	350	496
N4KHZ	1D	LP	19			19	38			2	76	50	126
N8KH	1D	LP	662	2	2	660	1320			2	2644	450	3094
NN2L	1E	QRP	555			542	1084	13	26	5	5550	150	5700
W2BSN	1B	LP	58	58	58					2	116	150	266
W2CCC	2D	LP	83	26	26	23	46	34	68	2	280	50	330
W2LB	1E	QRP	160	2	2	158	316			5	1590	150	1740
WA2CHV	1E	LP	70	7	7	63	126			2	266	150	416
<b>22</b>			<b>5080</b>	<b>764</b>		<b>3110</b>		<b>1206</b>				<b>2600</b>	<b>29030</b>

These are just the details that I could find for those who submitted scores. There are others who also approached this strange FD landscape in other ways. Congratulations are due to all who participated in whatever way they could. Also regrets to those who gave it a try but weren't able to get the pieces together. These were certainly difficult times that hopefully we will never see again.

With that in mind, **Field Day 2021 is June 25 and 26**. What will it hold for us? Hopefully, we pursue it with the ingenuity and camaraderie RDXA traditionally brings to its Field Days.

**CQ FD de W2RDX**



## Field Day Photos

### *Lynn Bisha W2BSN*



The antenna, Cushcraft D4 rotatable dipole for 40, 20, 15, and 10m. Mast about 28ft. "Armstrong" rotator equipped.



The Crew, L to R. Jack Stewart, Laura Wood, Mike Sanchez KM2B, Doug Stewart N2BEG, Chuck Lempke NN2L, Lynn W2BSN, Ed Wood.



Dell Laptop, Win XP, N1MM Logger, Kenwood TS-570S, MFJ pwr supply, APC battery backup, Bencher paddles for decoration

### *John Hall – AC2RL*



20 meter QCX transceiver, American Morse paddle, scooter battery, wind-up watch, pencil-and-paper log.



Back yard CW QRP portable

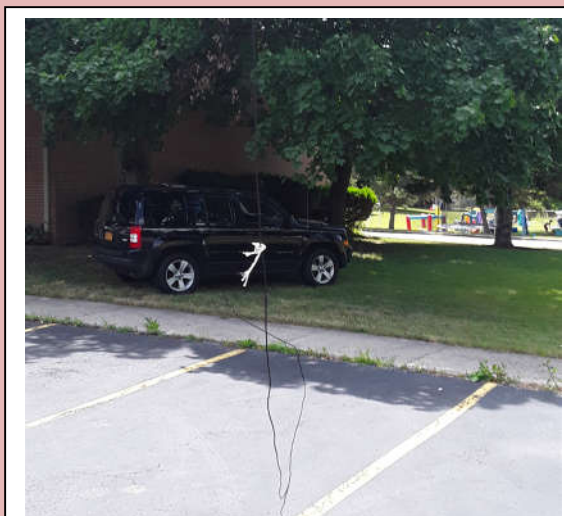
*Tom Jennings – KV2X*



KV2X 1B1 operating from camper in home QTH driveway. Powered by car batteries. Antennas was a quarter wave 40m vertical and a 80m quarter wave vertical strung up in the trees.



*Tom Webster*



Trying to beat the heat!



Simple 40m dipole 4:1 gunella balun



## Field Day 2020 at WA2CHV

“Every contest is a learning experience.” – Anonymous, possibly Jeeves or H.P.M himself...

Field Day (FD) 2020 was gonna' be tough. No doubt about it. I knew I'd miss the camaraderie of the RDXA team effort at Webster Park and I felt I had to get something together at the home QTH beyond just running class 1D. I wasn't about to move the station into the backyard, but at least I could get in “the spirit of Field Day” by running it from emergency power, class 1E.

Omens were good. On Tuesday, June 23rd, after a brief shower a brilliant double rainbow appeared over the Off-Center Fed Dipole (OCFD) main antenna at WA2CHV:



Fig. 1: Rainbow over the Off-Center-Fed Dipole (OCFD) at WA2CHV on Tuesday, June 23rd, after a brief rain shower. A good omen for Field Day! Only one of the two arcs showed up in this photo. The center “insulator” is actually a 4:1 voltage balun in series with a 1:1 current balun both in a NEMA-style plastic box<sup>1</sup>. Coax is Davis RF “Buryflex”.

I hadn't been on the air since early February and was looking forward to getting back on. It would be good to burnish my crusty and rusty cw skills.

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<sup>1</sup> Balun Designs model 4116e. <https://www.balundesigns.com/model-4116-4-1-hybrid-balun-1-5-54mhz-3kw/>

During the previous week, work was completed on an upgrade to the emergency power system for the home hot-water heating system. This emergency power system was first constructed immediately following the Great Rochester Ice Storm of 1991<sup>2</sup> and evolved over the intervening decades. Its primary purpose was to supply ~200 watts of intermittent 120 VAC power to a gas-fired boiler in the event of a power failure in sub-freezing weather. It had to meet several stringent requirements in addition to powering the boiler: It had to be entirely push-button operated, and, since the XYL<sup>3</sup> had to be able to operate it while I was on travel (this was pre-my retirement), it could use no gasoline (the gas can is *always* empty when you absolutely need it). There were naturally also budget and space constraints.

Field Day would be a perfect opportunity to rigorously test the upgraded emergency power system. In fact, it would be the chief goal of this year's Field Day exercise. From a purely Field Day viewpoint, it would actually have been much better to directly power the station equipment from 12 V deep-cycle batteries and use a laptop computer for logging and station control. A laptop computer would have been significantly less power-hungry than the desktop computer and monitor actually used. A direct connection from the rig to batteries would also have had an efficiency advantage.

In its latest incarnation, this emergency power system consists of a new 2,000-watt pure sine wave inverter<sup>4</sup> fed by a 200 A-hr flooded lead-acid<sup>5</sup> battery bank<sup>6</sup>, kept charged by an intelligent charger<sup>7</sup> connected to the utility mains. The boiler connects to the inverter through a transfer switch and Ground-Fault Circuit Interrupter (GFCI). The extra power capability<sup>8</sup> is adequate to power a refrigerator in the event of a power failure in warm weather or to power a 1/3 hp sump pump in wet weather. The prime requirement, however, was to run the boiler. Here's a picture of the installed inverter and its digital controller:

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<sup>2</sup> For anyone who was not here in Rochester at that time for that demonstration of mother nature's majestic might: <https://www.youtube.com/watch?v=1UMRrRqBWMU>  
<https://www.nytimes.com/1991/03/05/nyregion/an-icestorm-paralyzes-western-and-northern-new-york.html>

<sup>3</sup> "XYL" is no doubt considered sexist in this day and age. My sincerest apologies to all offended. I am a Neanderthal.

<sup>4</sup> Samlex, PST-2000-12

<sup>5</sup> Lead-acid is not the only choice. An excellent review of available battery technologies for amateur radio use can be found in an article by Bryce M., 2020, 'Battery Sizing for Portable Operation', *QST*, Volume 104, Number 6, pp. 30-33.

<sup>6</sup> Two, group 29, 100 A-hr, deep-cycle batteries in parallel.

<sup>7</sup> BatteryMINDER model 2012 12 V, 2 A intelligent charger with optional battery temperature sense

<sup>8</sup> It is also illusory. This installation cannot violate the law of conservation of energy. The bank allegedly stores 2.4 kW-hrs of energy if it is withdrawn along a very specific discharge curve. In reality there is less than 2 kW-hr of energy available and something like a refrigerator or sump-pump will consume that energy very quickly.



**Fig 2:** View of the inverter and its controller at the top. The inverter feeds power into the GFCI outlet in the electrical box immediately above it from whence the power goes to the boiler. Like inverter-generators, these inverters can be prodigious emitters of conducted electrical noise<sup>9</sup> throughout the amateur bands. Just barely visible in the picture behind the inverter is a Fair-Rite 2631814002 type-31 ferrite core, wrapped in electrical tape, with four turns of 12-gauge SJ00W cord around it to help choke off this noise on the inverter output.

Of course there were the usual FD “gotcha’s”. A new typewriter desk had arrived to put the station equipment on the previous month, was assembled, and I (erroneously) thought Friday, the 26th, before Field Day would be an excellent time to move the station equipment off of the flimsy TV tray it was currently on and onto the more stable typewriter table. What could possibly go wrong with such a simple furniture move? The move was completed with a minimum of exertion. There were just a few cables to disconnect and reconnect and I was done. The operating position was ready:

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<sup>9</sup> 9 Wilson M. J., ‘A Look at Gasoline Powered Inverter Generators’, 2012, *QST*, Volume 96, Number 6, pp. 49-53.



**Fig 3:** The operating position at WA2CHV. New typewriter table is on the right with power supplies, Elecraft KXPA100 amplifier, and Dentron MT-3000A antenna tuner (used on 160 m only) on it. Glass-topped table in the center is the actual operating seat with keys and Elecraft KX3. Computer desk on the near left contains the desktop logging and station control computer. The ALPHA 87A amplifier and Heathkit crystal radio on the left were *not* used during Field Day.

17:45 Hrs zulu (1:45 p.m. local) on Saturday and it's time to shift the equipment to emergency power, fire up the station, and get ready to contest! A 12 gauge, 100 ft. extension cord brings 120 VAC power from an emergency-power outlet next to the boiler in the basement up to the second-floor shack. I disconnect the intelligent charger from the utility mains. I shift the radio equipment and the station computer<sup>10</sup> to the extension cord. Poof! No power!! Indicator LEDs on the inverter indicate that it's happy. Hunh? What's<sup>11</sup> going on here?? Several precious minutes of head scratching pass until it dawns on me to check the GFCI. Yep! It tripped! Resetting the GFCI yields power at the rig in the proverbial nick o' time and I sit down at the operating position at 18:00 hrs zulu (2:00 p.m. local) as Field Day starts.

Now I'm a search-and-pounce sort of cw guy, so I start on 20 m cw. My intent is to start high (20 m) and work my way down to the lower bands as the day wears on. I'm gratified to see a flood of signals on my spectrum display on 20 m. I select the closest one on the dial and fire up N1MM+ which immediately tells me there is no radio on com 5 and it is reverting to something called "manual radio." My head explodes. Now what?? After several select expletives, I get down to troubleshooting. Now those of you familiar with Elecraft equipment will remember that the serial control signals run from the computer

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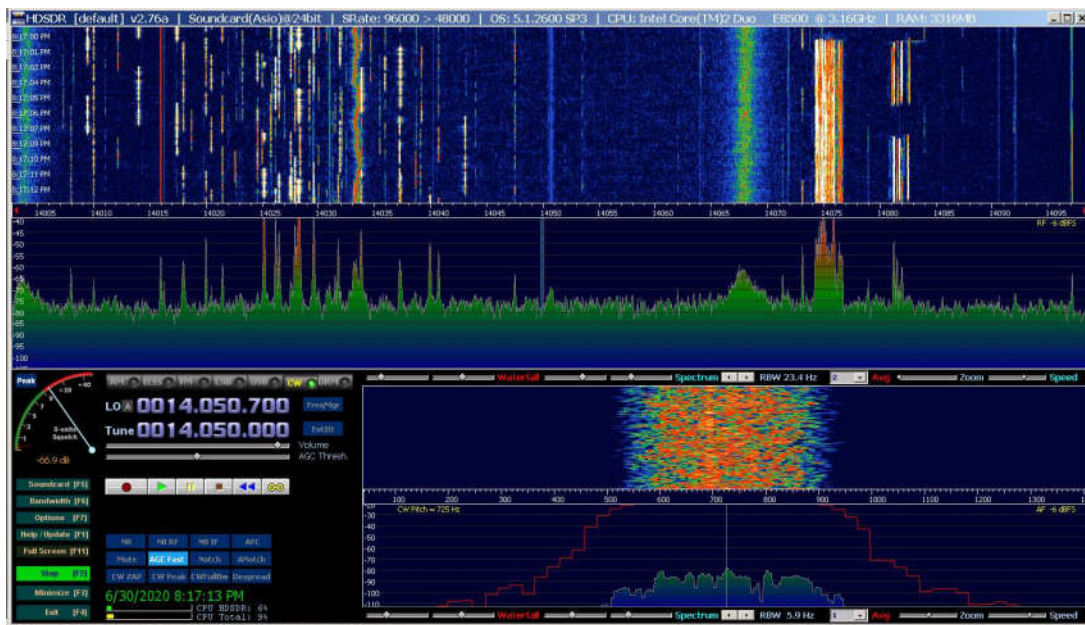
<sup>10</sup> The station computer is used to key the KX3 through N1MM+ so by the regulations, it too, has to be on the emergency power.

<sup>11</sup> Expletives redacted.



USB port through an FTDI adapter to the Elecraft equipment. Ah-ha! I had clearly plugged the Elecraft FTDI adapter back into the wrong USB port on the computer during the furniture change! After 45 minutes of plugging the FTDI adapter into each one of the eight (!) USB ports located on the back of the computer chassis buried behind the station, N1MM+ was still not working. At this point the expletives had all acquired a livid purple aura. Then the realization dawned that I had the wrong FTDI adapter! Elecraft supplies two FTDI adapters, one for the KX3 transceiver when operated alone, and one for when operating the KX3 with the matching KXPA100 amplifier. The gotcha is that when the KX3 is used with the KXPA100, the KX3 FTDI adapter is not used because the KXPA100 then controls the KX3. I had plugged in the wrong FTDI adapter during the furniture move! I rummaged through a rat's nest of wires in the back of the station computer for the correct FTDI adapter and plugged it in. N1MM+ is happy! Moral of story: Organize and label your cables.

It's now 18:45 hrs zulu (2:45 p.m. local) and I'm slowly cruising up the cw section of the 20 m band making Q's as I go. Not fast, but steady. Now the optimization that has to be performed here is not contacts per hour, but rather contacts per kW-hr. The contest is longer than the battery bank. The station desktop computer, monitor, and KX3 are continuously sucking up about 200 W during receive<sup>12</sup>. Transmit with the KXPA100 roughly doubles that power draw. Now contesting "run" mode is wonderful if one is making Q's one after another, but endlessly calling CQ with no reply isn't a particularly good use of battery. Trying to bust through a pile-up on a station with a run going also isn't a particularly good use of battery. My ideal is to quickly find a station calling CQ "in the clear", answer, and make a quick QSO. The spectrum display on the computer is invaluable here. A screen shot of the KX3 spectrum display is shown here:



<sup>12</sup> This wattage is reported by the inverter itself and is purported to be "real" watts as opposed to Volt-Amperes Reactive (VAR). The power factor is reported by the inverter to be 0.77. The KX3 in receive is only a small part of this draw.



**Fig. 4:** KX3 Spectrum display centered on 14.050 MHz. This screenshot was taken some days after Field Day.

Q's accumulate on 20 m. I seem to have a pipeline into the South and Midwest. I log Doug, N2BEG, for the (shortest) distance<sup>13</sup> QSO record. I venture into the phone part of the 20 m band and make a half dozen SSB QSO's but phone holds no thrill for me. A short foray up to 15 m and I harvest some cw Q's but a high noise floor hampers operation there. Clearly there's more work to be done on local-noise suppression. Florida and Texas seem to own 15 m for whatever reason. The last contact is with the Stanford University Radio Club in section SCV. At almost exactly 24:00 hrs zulu (8:00 p.m. local), after 6 hours of operation or attempted operation, just as I key the transmitter, all equipment goes dead. The inverter alarmed on low (10.7 V) input voltage<sup>14</sup>. The bank is depleted after taking an estimated<sup>15</sup> 1.5 kW-hr. of energy from it. In its intended use, that would equate to 15-hours of boiler operation at 50% duty cycle. I call it a day<sup>16</sup>.

Sunday morning 11:00-hrs zulu (7:00 a.m. local), I'm faced with the problem of recharging the bank without using the utility mains. The obvious solution is to charge the bank from one of my vehicles by "jumping" it. This I've never done before with this bank and with a vehicle having myriad electronic devices on it, so I take the time to peruse my vehicle's owner's manual. The old "positive post to positive post and negative post to negative post"<sup>17</sup> no longer applies due to this little device (computer):

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<sup>13</sup> 1.66-miles; 2.66-kilometers straight-line distance; 100-watts were used on both ends.

<sup>14</sup> The 10.7-volts is measured at the inverter, not at the batteries. That means there is a bonus in real-world bank life to keeping the resistance of the very-high current 12 V wiring and its connectors as low as possible. Milliohms count. The 12 V wiring is the wrong place to "cheap out" for both bank life and safety reasons.

<sup>15</sup> This estimate is arrived at by assuming a 25% duty factor for the 200 transmitting watts and adding that to the 200 receive watts for a long-time-average wattage of 250 watts. Multiplying this wattage by 6-hours yields 1.5 kW-hr.

<sup>16</sup> Why call it a day so soon? Why not charge the bank and battle on for more points? The answer is that a pair of group 29 batteries in parallel can deliver several *thousand* amps of current under short-circuit conditions. One does not want to be mucking about with something like that when tired or hungry. It was deemed wise to attempt recharging the bank under emergency conditions for the first time when alert and well rested and at the top of one's form.

<sup>17</sup> This old prescription actually runs the risk of explosion due to hydrogen gas near the battery. It is much better to make the final connection of the negative lead, which may spark, to the vehicle's chassis away from the battery.



**Fig 5:** The white-topped box next to the battery negative post is an “Intelligent Battery Sensor” or IBS.

The small white-topped box is an “Intelligent Battery Sensor”<sup>18</sup> or IBS. Among other things it monitors the amount of charge (Q) delivered to or from the vehicle’s starting battery. It digitally<sup>19</sup> relays this information to the vehicle’s power train control unit via the signal wires in the foreground of the photo. The power train control unit in turn controls the vehicle’s alternator in part based on this data. One really does not want to confuse the IBS’s estimate of the vehicle’s battery condition by bypassing it in the process of jumping the vehicle. Happily many manufacturers of vehicles so equipped provide a surrogate battery “negative terminal” for just this purpose:

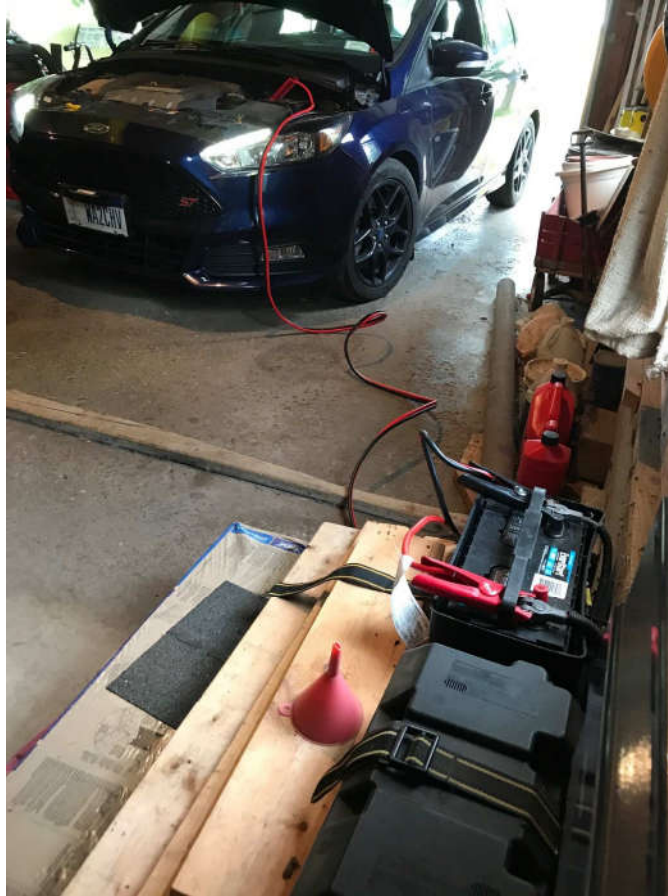


**Fig 6:** “Surrogate” battery negative terminal. Connecting the negative “jump” lead here ensures that the IBS will properly account for any charge taken from the vehicle’s starting battery for the emergency bank.

<sup>18</sup> <https://www.continental-automotive.com/en-gl/Trucks-Buses/Vehicle-Chassis-Body/Advanced-Sensors/IntelligentBattery-Sensor>. <https://www.samarins.com/glossary/battery-sensor.html>

<sup>19</sup> <https://www.csselectronics.com/screen/page/lin-bus-protocol-intro-basics/language/en>

By 12:00 hrs zulu (8:00 a.m. local), I'm charging the bank from my vehicle using a set of jumper cables<sup>20</sup> to the appropriate terminals:



**Fig 7:** Charging the bank from my vehicle. This is a fairly perilous operation due to the high short-circuit current available from the two group-29 batteries in parallel. Quality jumper cables are essential. A clamp-on DC ammeter would have been very useful.

This method has the very large disadvantage that there is no instrumentation to tell how fast the bank is recharging or how much the bank has been recharged. I estimate I need to move about 100 A-hrs of charge from the vehicle to the bank. That's probably not going to happen any time soon with the vehicle at idle and just a set of jumper cables. After 90 minutes I remove the jumper cables and get the station fired back up.

At 13:30 hrs zulu (9:30 a.m. local), I resume my "high-to-low" strategy and start on 15 m cw. Again there seems to be a pipe into Florida and the South. After harvesting all the cw Q's to be had on 15 m, I move down to 20-meters. The spectrum display is blissfully crowded and I slowly work through the band in "search and pounce" mode, picking off easy Q's as I go. I work Ken, N8KH, in SFL. I bounce back up to 15

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<sup>20</sup> The use of quality jumper cables is highly recommended. The ones your mother-in-law gave you for Christmas in 1993 aren't going to cut it from either a performance or safety standpoint. Trust me. I've tried them.

m and occasionally to 10-meters looking to see if either band has opened up more. The OCFD antenna is a real sweetheart, loading and performing well on all three (20-, 15-, and 10-meter) bands. After logging WA4PSC in North Carolina on 15 m at almost exactly 15:00 hrs zulu (11:00 a.m. local), everything goes dark again. The bank is empty again. Only 1.5 hours of operating time acquired for 1.5 hours of charging. That equates to about 20 A of charging current from the vehicle. Time to reconnect the jump for an hour.

At approximately 16:30 hrs zulu (12:30 p.m. local), I resume my “high-to-low” strategy and start on 10 m cw! 10-meters is open according to the spectrum display! The OCFD really likes 10-meter operation and I quickly start to work every cw Q to be had there. I again hear Doug, N2BEG’s “Hi Jack!” and log him for the (shortest) distance 10 m QSO record. At 17:20 hrs zulu (1:20 p.m. local) I log WA0IYY out in Fenton, Mo., just south of St. Louis for the last QSO of my contest. Shortly after working IYY, everything goes dark for the last time during Field Day 2020 at WA2CHV. WA2CHV is QRT!

So for approximately 7 hours of actual operating time I turned in a score of 416 including the 1E bonus points. Not a contest-winning score but I really enjoyed the challenge and I sure did learn a lot (as usual). The primary goal, which was not to “win” Field Day but to test the boiler’s upgraded emergency power system, was achieved. It performed splendidly under harsher conditions than it would experience just operating the boiler. I did find that I need a better way to charge the bank from a vehicle though.

The Field Day operating “lessons learned” included the eternal ones: Successful FD operation is all about preparation preceded by preparation and followed by more preparation. Practice too, is essential. Organization (especially of cables, I think this got me during the NYQSP too) is essential for rapid troubleshooting. More mundane “lessons learned”: In retrospect I should have tried getting a run going. With the bands as good as they were, I now think I would have been successful. I started the contest sending the exchange twice for reliability but quickly found sending it once was every bit as reliable and faster. Finally, don’t mess with a working station the day before a contest...

More work needs to be done to reduce my local noise floor on 15-meters. Some form of metering needs to be added to the bank so that recharging can be monitored. The station computer could have easily been made much more energy-efficient: Two internal hard drives that are no longer being used should have been disconnected. The fluorescent-backlit monitor could easily have been replaced with an available LED-backlit monitor for further energy savings.

One more FD is now in the log and I am already looking forward to the next one!

## Field Day from N2DD

### *The More Things Change, the More They Stay the Same*

The Covid-19 crisis affected everyone and everything in the spring of 2020, including the way we did Field Day this year. Gone were the massive 20A or 30A stations, allowed were the 1D – 1D contacts for points. Social distancing and emergency communications were practiced all over North America this weekend.

Our Field Day operation was much the same as previous years with home-built antennas and the radios set up on a table in the back yard running on 100% emergency power. Things that changed included a solar powered station and the addition of another op. Cedric, W2CVH, is a new ham this year and joined Ken, W2KMK, and I for Field Day. Having the third person man the station meant that we'd be running Class A instead of Class B, in this case 2A with a free VHF transmitter. All three of us were on the air and having a great time. Social distancing wasn't much of an issue as we all work together and are taking the same precautions.

The 20-meter station was my trusty FT-857D running on two SLA batteries hooked up to a solar system's charge controller. On the 6-meter loop was my TS-2000 running off the generator. The 10-meter station was Cedric's Xiegu G90 20-watt transceiver into Ken's mini-AS-2259, built with wires cut for 10- and 15-meters. The fourth antenna in the yard was my home-built full size AS-2259 with a LDG Z11 Pro tuner at its base. This one was used on 40 meters Saturday night and 15 meters Sunday morning.

We knew the station wasn't going to be a big scoring effort; there were two things working against us. We were located in a residential area of Greece where the atmospheric noise floor normally runs S7 to S9 on a good day. We were also using NVIS antennas that aren't designed to transmit further than 500 miles. Our only long distance antenna was the 20-meter vertical dipole and it didn't disappoint making contacts from British Columbia to the Maritime Provinces. There was third factor that we hadn't counted on: ARRL's response to Covid-19 and their attempt to keep everyone safe.

There were a lot less Class A and B stations on the air. I run Search and Pounce and heard the running stations coming back to a lot more Class D or E stations this year. My best luck seemed to be finding someone calling CQ Field Day, and getting my QSO before the pile-up started. It was hard to compete with those hams that chose to run their contest-ready stations at home rather than participate their club activation stations in the park.

All things considered, I consider this year a win. I heard a lot more call signs out there this year. The bands were as busy as they would be for CQWW, even 10 meters. N2DD didn't score a ton of points. Cedric got to experience the joy of making more than a dozen HF contacts on his own rig, and I discovered that my home-built antennas worked better than anticipated. The big AS-2259 (NVIS) was able to pull in contacts in from NFL and CO. Kens mini AS-2259 snagged contacts as far away as Georgia. Cedric had a QSO with KT4ZB in Savannah, GA on ten meters and 10 minutes later I made a contact with him on 15 meters. That's 800 miles on two different AS-2259s!



Plans for next year? Both Ken and Cedric want to upgrade to General so next year they can get on more HF bands. I'm looking to set up my 857 on digital modes for twice the points. Field Day in 2004 opened my eyes to HF and contesting. This year it has done the same for Ken and Cedric.

Until next time, 73 and "I'll see you on the air." - Dan Guyor, N2DD



Dan, N2DD (front) at the 20-meter station; Cedric, W2CVH (middle) working 10 meters; and Ken, W2KMK (back) on 6 meters.  
(Photo by Gay Linn, N2DD/XYL)



Cedric, W2CVH, (right) is making a contact with KT4ZB, 1D in Savannah, GA. (Photo by N2DD)



Ken, W2KMK, trying to find anyone on 6 meters. (Photo by Gay Linn, N2DD/XYL)



The 20 meter station. Yaesu FT-857D with the solar panel on the ground and 20-meter vertical dipole in the distance. Solar-charged battery not shown. (Photo by N2DD)



Cedric, W2CVH, Ken, W2KMK, and Dan, N2DD. The N2DD FD 2020 team. (photo by Gay Linn, N2DD/XYL)



**You told me you had  
a lot of money invested**

**Yeah. In ham radio gear**

## NYQP Update

N2BEG

Well its now going to be September in a couple days. We have been waiting (most of us patiently) for the NYQP plaques to be shipped to the winners after a long delay due to our plaque vendor being shutdown due to COVID19. After staying in touch with the vendor throughout the spring and now summer, he recently confided that he will not be able to re-open anytime soon and the future of his business is up in the air. This really sucks as he was a ¼ mile from my house, does great work at a fantastic price and always provided great service over the past 10 years. He suggested a few other local places we might try for having our plaques made. I reached out however due to the rather uniqueness of our laminated plaques we have grown accustomed to, no local places could provide plaques using existing certificates already made and were way more expensive with any alternatives. Having no other choice, I went online. I was able to find a vendor that had a nice cherry wood gold accented frame that would accept the already made certificates at a price that was close to what we had been getting our plaques for. I ordered one to try and it fit the bill. We have now ordered the materials to make the rest and get them shipped out. They should hit the mail in the next couple weeks. Thanks for everyone's patience.



Remember 2020 NYQP is October 17-18! RDXA Needs to win this plaque!!!

## *2020 Antenna Project #1*

### **HF9V repair and resurrection**

N2BEG

Now that we are in the waning moments of summer, it's time to get a jump antenna work. Like most of you, it has to fit between a whole host of other projects that need to be done also. I have put this off too long and I have a feeling this winter will be a very long one.

The Butternut HF9V has been a staple of my antenna farm since I first put my own HF station on the air in 1983 while working in CT for National Semiconductor. (it started life as an HF6V) For those unfamiliar, the HF9V is a multiband vertical that operates on 9 bands, 80m – 6m. It measures 26 ft tall and will handle 1500w on most bands. Even though the design has remained relatively unchanged since it was introduced, there have been some great ideas by users as well as a couple upgrades to components over the long (and still going!) production run of this great performer.

I added the WARC kit at some point to get 30,17 and 12m. (Kudos if you are old and know what WARC means) The antenna has always been mounted elevated due to different issues and even with the stub tuned radial kit as its only counterpoise, it really performed well. After moving 3 times and replacing it once (through an estate sale, thanks to Ed, K2MP), it has now been caught in a black walnut tree since last winter. It somehow still radiated enough RF to make contacts. I decided it was time to try something else since the tree is not getting any smaller and I had to take the antenna down to re-shingle the roof anyway. (there is some tree work in my future as well, two other antennas are now caught up in other trees now also.)

I decided to take it down, completely disassemble and clean it, test everything and replace the feedline and matching section. At that point I decided why not try ground mounting it and try it the way it was really designed to work since I have room now and have no kids playing in the yard, etc. (only deer and the occasional black bear) It has been mounted on my back garage roof at the corner with 4 stub tuned radials, and two 80m radials under it since 1998. That's it. I don't know all of what I worked on that antenna, but it was well over 200 countries, including my 10,000mile/watt QSO with a ZL on 40m using  $\frac{1}{4}$  of a watt at the previous QTH. I also worked the Heard island DXpedition on it with 100W on 80 meters... lots of great QSOs... I cant recall what I paid for the original in 1983 but I bet it was about half what they want for this antenna now as Butternut is now owned by DX engineering. (current retail is \$604.99) Anyway, I pulled it down and got to work. This is what it looked like prior:





*Verticals are supposed to be vertical*



*It somehow still radiated something*



Pretty rough shape... 2 radials left intact, broken wires on 17 and 12m sections...feed in really bad shape. I had not serviced this antenna in many years and it showed. I started by disassembling all the sections and then went to work cleaning all of the contact points. I took the three door knob caps off and carefully cleaned each and checked them on my cap meter to make sure they were still OK. These are prone to issues and are the most expensive replacement parts. Luckily mine tested OK and cleaned up fine. In the midst of this project I stumbled on a Butternut antenna group on Groups.IO and joined it. It has over 1000 members and has been around since 2005. Since these antennas have such a long history, there are many folks out there that have tackled the same problems and rebuilt these things many times over the years. The photo section was very interesting to say the least. I thought MY antenna was in rough shape!! It was very interesting to see how others did things. A great resource.

<https://groups.io/g/Butternut>

I proceeded with disassembly, inspection and cleaning. Disassembly had shown corrosion and oxidation on most of the joints of the antenna. I used scotchbrite to clean up everything and then applied Alumashield (Noalux) to each joint. I then reassembled the antenna.





*Clamp before cleaning*

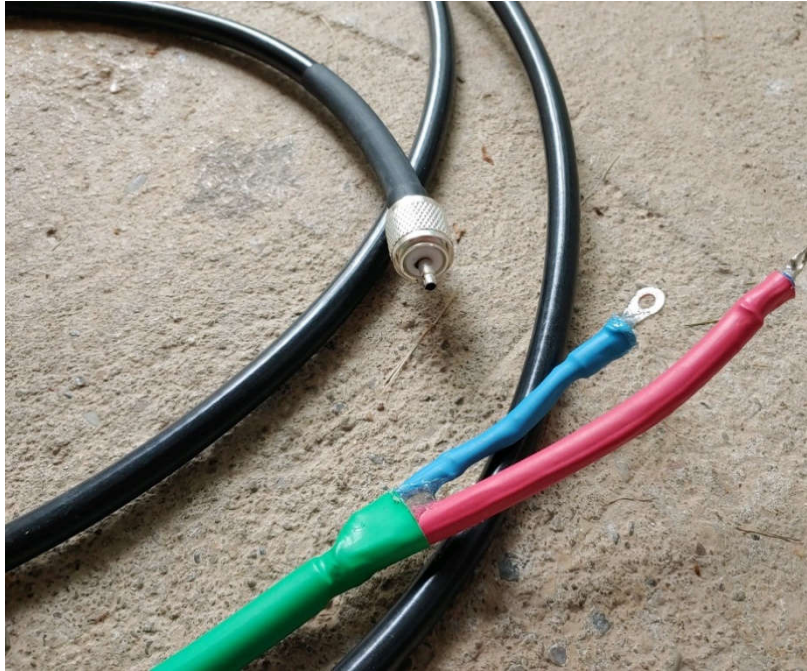
I replaced the broken wires, some of the hardware and made a new feedline matching section. After looking at the feedpoint, I had trouble imagining how the hell it radiated anything. I also rung out the coax to the shack and discovered it was bad also. (I terminated the far end with a 50 ohm resistor and ran my MFJ analyzer through the bands from the shack end. The resistance and reactance swung all over as I went up in frequency indicating it had issues) Ran a new section of direct burial RG213 with new connectors on both ends. Testing the new line showed it stayed at 50 ohms when swept through 6 meters.



*antenna before repair*

The HF9V uses a 75 ohm matching section to lower the feedpoint impedance. I cut a new length and crimped a fresh PL259 on one end and then striped and prepped the other end for connection to the antenna across the base coil assembly. When mounted on the roof, this connection saw a fair amount of movement from the antenna and radials pulling on it in the wind, plus its open to the weather so it needed special attention. Now that its on the ground, it should not move, but should be weather proofed as much as possible. After stripping back the shield about 5 inches, I tinned the entire length, added 2 layers of heat shrink to both the exposed center insulation the cable and the shield, then crimped an eye lug on both ends and soldered those. I then shrank the heat shrink and for added protection, added silicon RTV to the ends and the Y. I plan to make a weather cover out of an empty plastic gallon container to protect it from snow as much as possible.

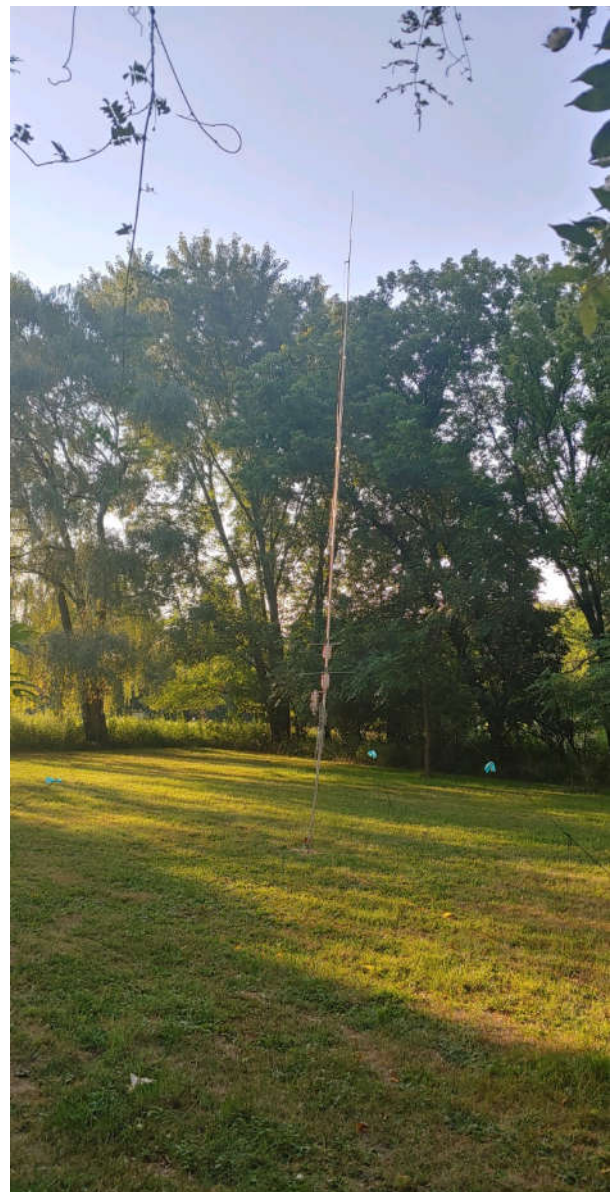




*new 75 ohm matching section*

Once I had the antenna mounted, I went to work on the radials. I have seen the fancy (and expensive) stainless steel radial plates that DX engineering sells, and have made my own in the past, but thought I could come up with something since the budget for this project was set at zero dollars and required using what I had on hand. I had salvaged the focus coil from an old SEM that was being scrapped out at work many years ago that was made from a LOT of 18gauge enameled covered wire. I had always thought I would use that for a beverage or something. I had no idea how much wire is on it but it had to be several hundred feet. I then found a large copper ground clamp and a piece of 10-gauge solid copper wire in my scrap bin. I fashioned the wire into a ring and then mounted the clamp to the antenna base, fitted the wire around the base and secured it into the clamp with the screw. (as tight as humanly possible) I then proceeded to run 35' radials out from the base. Ask any ham who has done this, it's the most tedious job in antenna work. I stopped after I had 8 radials down just to see what the antenna looked like on the analyzer. I carefully scrapped the enamel from the end of each at the base, wrapped them around the copper ground ring (which I also scotchbried prior to mounting) and soldered each one with my large butane soldering iron. I then walked on each radial to form it against the ground and then I used landscape staples to hold the radials down at several spots on each wire.

The antenna now shows resonance in each band, which it didn't before. I'm adding more radials, including longer ones for 80m. I expect it to perform for a few more years until needing service again. One antenna project down, 4 more to go..





## W2CCC station improvements

Chris, K2CS

One benefit I've found with all the lockdowns is it's a great time to whittle down the never ending ham radio "to do" list.

When the WX is good (as it has been all summer really), antenna projects and the like are first on the list. Even though we've all done it, working on wires or climbing the tower in February isn't really enjoyable (or maybe even smart).

I took some time to redesign the station at W2CCC while there in July. It was a 3 day project as I removed EVERYTHING and started from scratch.

Remember, I don't live there and many times have "chores" (such as cutting the lawn, weed whacking, other upkeep tasks) that need to be done diminishing the amount of time I have for station improvements. Many times, I'll arrive shortly before a contest, unpack and get on the air.

Years of station additions had extension cords, 12v lines taped together, coax extensions and jumpers way too long for the need and a cramped operating space. 90% of the needed improvement items were there, just no time to put them in.

As can be expected, several things no longer worked when hooked back up – mainly VHF amplifiers.

N2BEG (Doug) had given me a 19" rack years ago and it finally has been used. 903/1296 and a TS-711a i/f rig now are housed in it along with the FT8 VHF computer. The keyboard and monitor sit on top as it's a ½ height version.

I installed a shelf to put all the "bricks" on, cleaned up all the wiring and actually gave myself some space to set my arm down on when sending CW.

During the week, we had fibre installed (so we are 40 miles from Utica, 4 houses on a dead end road and yes, they pulled fibre....) so drivers, schematics, manuals and updates are all obtainable now – we've been there 17 years w/o internet and the cell service was spotty at best. It can be done but you don't know how many times I just wanted a file or see what "that button does".

So, time well spent but back to other "home" projects that need to be completed while there in September. It's not unusual to see snow in October....

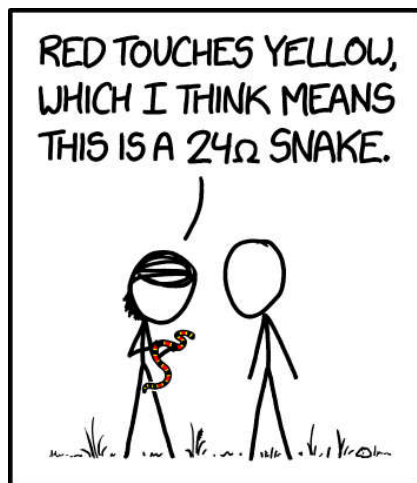
Chris, K2CS







W2CCC microwave "rack"



## SUBMISSION GUIDELINES

The preferred format for newsletter submissions is Microsoft Word.

Plain text and PDF are also acceptable but are more work to handle.

If you submit plain text, please let the text wrap within paragraphs and only use a newline at the paragraph end.

## RDXA 2020-21 Calendar

### September 2020

1 BOD – K2CS  
10-12 **ARRL September VHF**  
15 Meeting – Zoom – Show shack  
**26-27 CQWW RTTY**

### October 2020

6 BOD - K2TER  
20 Meeting – Zoom – DX Eng  
**17-18 NYQP**  
**24-25 CQWW SSB**

### November 2020

4 BOD – **WED** – K2DH  
**7-9 ARRL SS CW**  
**16-18 ARRL SS SSB**  
17 Meeting – Zoom - TBA  
**21-23 CQWW CW**  
**30 BULLETIN DEADLINE**

### December 2020

1 BOD  
**4-6 ARRL 160m CW**  
**12-13 ARRL 10m**  
15 RDXA Holiday Dinner ??  
28-30 RMSC Event  
**26-27 Stew Perry 160m CW**

### January 2020

**2-3 ARRL RTTY Roundup**  
5 BOD  
**16-18 ARRL January VHF**  
19 Meeting  
**29-31 CQWW 160m CW**



### February 2021

2 BOD  
**13-14 CQWW WPX RTTY**  
**20-21 ARRL DX CW**  
16 Meeting  
**25-28 CQWW 160m SSB**  
**28 BULLETIN DEADLINE**

### March 2021

2 BOD  
**6-7 ARRL DX SSB**  
16 Meeting  
**27-28 CQWW WPX SSB**

### April 2021

6 BOD  
20 Meeting  
?? Awards Banquet ??

### May 2021

4 BOD  
18 Meeting  
21-23 Dayton Hamvention ??  
**29-30 CQWW WPX CW**  
**31 BULLETIN DEADLINE**

### June 2021

1 BOD  
?? Rochester Hamfest ??  
15 Meeting  
**17-18 ARRL June VHF**  
**26-27 ARRL Field Day ??**

### July 2021

**10-11 IARU**  
**18-19 CQWW VHF**

### August 2021

?? ROC City Hamfest ??  
31 Contest season concludes  
Membership year concludes  
**31 BULLETIN DEADLINE**

## Rochester DX Association

**Club Station — W2RDX**

**Club Website — <http://www.rdxa.com>**

**Facebook group — RDXA QTH**

This Bulletin is the official publication of the Rochester DX Association and is published Quarterly.

All those with an interest in amateur radio, DXing and contesting are cordially invited to any meeting and to join RDXA.

Meetings are held at 19:30 L... 3rd  
Tuesday... June.  
M...  
En...  
Sc...

**IN-PERSON MEETINGS ARE CANCELLED  
DUE TO THE PANDEMIC.  
See Calendar and first page for online  
meeting schedule.**

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Please send all newsletter submissions, comments,  
and complaints to the editor:

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